

REMARKS

This application has been reviewed in light of the Office Action dated September 9, 2005. Claims 1- 23 remain presented for examination, of which Claims 1, 5, 10, 14 and 18 are in independent form. Claims 1-8, 10-21 and 23 have been amended to define still more clearly what Applicants regards as their invention. Favorable reconsideration is requested.

Claim 23 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. That claim has been amended recite that the storage medium stores software to perform the functions of the printer driver. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 1-8 and 10-21 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,072,906 (Sato), and Claims 9, 22 and 23 were rejected under 35 U.S.C. § 103(a) as being obvious from that patent.

As is discussed in the specification, it is common for the data provided to a printer to be in the form of luminance data (for example, representing primary colors red, blue and green). This data is converted into density data, typically cyan, magenta, yellow and black, for printing. In the course of producing these density signals, color correction is performed to try to establish a linear relationship between each signal and the density that will actually be printed by the printer in response to that signal. The resulting signals, typically each containing several bits per pixel, are then quantized to form signals whose bit-length corresponds to the number of actual tones printable in each of the density primary colors by the printer (for example, one bit per color component).

In order to reduce the computational demands on the printer, this processing is not performed by means of calculations in the printer. Instead, look-up tables are

prepared that use the possible input values as addresses and map each possible input value to corresponding output values. Because of this, as well as the quantization, some degree of error is inescapable in the resulting print data. In ordinary color printing, however, such errors are not visually significant, and thus can be tolerated. In high-quality color printing, however, even these small errors become noticeable sufficient noticeable to interfere with the achievement of the desired print quality. Applicants have investigated this problem and have provided, in the present invention, a solution to this problem.

Independent Claim 1 is directed to an image processing apparatus for processing multilevel image data. That apparatus comprises dividing means for dividing the multilevel image data into pixel blocks each comprising a plurality of pixels. Conversion tables, each containing a plurality of items of conversion data, are provided, each item in which corresponds to a pixel position in each pixel block obtained by operation of the dividing means. Conversion means refer to the conversion tables to convert multi-level image data of a pixel of each pixel block into (new, or converted) data corresponding to that pixel, and quantization means quantize the resulting data. According to Claim 1, each item of the conversion data of each conversion table has been set in such a manner that an average value of the data corresponding to the pixel in the pixel block converted by the conversion means, takes on a value that is based on the multilevel image data within the block.

Sato relates to image data processing in which image data are output for each of plural pixels, and are then compressed to form image data of a predetermined number of bits. The compression is performed in accordance with a dot pattern having a predetermined number of tone levels. Even assuming for argument's sake that *Sato* discloses all that it is cited for in the Office Action (which Applicants do not concede),

however, Applicants submit that nothing in that patent would teach or suggest providing quantization means to quantize data produced by referring to the table shown in Fig. 7A, or to anything else in that patent that the Examiner may deem to be arguably a conversion table. For at least that reason, Claim 1 is believed to be clearly allowable over *Sato*.

Independent Claim 10 is directed to a printing control apparatus to which multilevel image data is input for generating printing data to control an image printing apparatus. The printing control apparatus of Claim 10 comprises dividing means for dividing the multilevel image data into pixel blocks each comprising a plurality of pixels, and conversion tables having a plurality of items of conversion data, each item corresponding to a pixel position in each pixel block provided by the dividing means. Conversion means refer to the conversion tables to convert multilevel image data of a pixel of each pixel block into data corresponding to that pixel in the pixel block, and print-data generating means generate print data, which is to be printed, based upon the data produced by the conversion means. The print-data generating means includes quantization means for quantizing the data produced by the conversion means and corresponding to the pixel in the pixel block. Claim 10 also recites that each item of the conversion data of each conversion table has been set in such a manner that an average value of the data corresponding to the pixel in the pixel block produced by the conversion means, takes on a value that is based on the multilevel image data within the pixel block.

Claim 10 is believed to be allowable over *Sato* for at least the reasons set out above with regard to Claim 1.

Independent Claims 5 and 14 are method claims respectively corresponding to apparatus Claims 1 and 10, and independent Claim 18, directed to a printer driver, includes the feature discussed above in connection with Claims 1 and 10. Accordingly,

Claims 5, 14 and 18 also are believed to be allowable over *Sato* for at least the reasons discussed above.

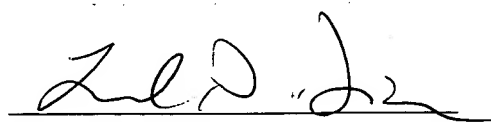
A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as a reference against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and allowance of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



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